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EXAMINER

PATANKAR, ANEETA V

ART UNIT

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4134

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/533,628 | Applicant(s) ARAI, AKIHIRO | |
| | Examiner ANEETA PATANKAR | Art Unit 4134 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/20/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/5/2008, 5/2/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because the word "means" has been used in the abstract. Correction is required. See MPEP § 608.01(b).

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 7, 11, 16, 17, 20, 22 and 23** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,275,463 to *Nagata et al.*

As to **claim 7**, *Nagata* discloses an optical head for reading and/or writing data from/on a storage medium, the optical head comprising: a light source (Fig. 4, column 5, lines 4-47); an objective lens for focusing light, which has been emitted from the light source, onto a track of the storage medium (Fig. 4, column 5, lines 4-47); light receiving means including at least one light receiving area for receiving a luminous flux of reflected rays, which have been reflected from the storage medium, thereby outputting a light quantity signal representing quantity of light received (Fig. 4, column 5, lines 4-47); and tracking error signal generating means for generating a tracking error signal based on the light quantity signal (Fig. 1-3, column 1, lines 14-39), wherein the luminous flux of reflected rays includes a first type of reflected rays where zero-order and first-order components of the light diffracted by the track are superposed one upon the other and a second type of reflected ray consisting essentially of the zero-order components (Fig. 13, column 10, lines 60-68, column 11, lines 1-8), and wherein as measured in a first direction in which the first type of reflected rays are arranged, the light receiving area has a size that is equal to or greater than the diameter of the luminous flux of reflected rays (Fig. 11, column 11, lines 47-

65), and wherein as measured in a second direction perpendicular to the first direction, the light receiving area is narrower than the first type of reflected rays (Fig. 11, column 11, lines 47-65).

As to **claim 11**, *Nagata* discloses the optical head comprising light splitting means for splitting the luminous flux of reflected rays into the first and second types of reflected rays (Fig. 4, column 5, lines 4-47).

As to **claim 16**, *Nagata* discloses an optical head for reading and/or writing data from/on a storage medium having at least two tracks with mutually different reflectances, the optical head comprising: a light source (Fig. 4, column 5, lines 4-47); an objective lens for focusing light, which has been emitted from the light source, onto one of the tracks of the storage medium (Fig. 4, column 5, lines 4-47); light receiving means including: a plurality of light receiving areas, which receive a first type of reflected rays where zero-order and first-order components of the light diffracted by the track are superposed one upon the other to generate a light quantity signal representing quantity of light of the first type of reflected rays (Fig. 4, column 5, lines 4-47); and a non-light-receiving area, which is provided between the light receiving areas so as not to receive a second type of reflected ray consisting essentially of the zero-order components (Fig. 13, column 10, lines 60-68, column 11, lines 1-8); and tracking error signal generating means for generating a tracking error signal based on the light quantity signal (Fig. 1-3, column 1, lines 14-39).

As to **claim 17**, *Nagata* discloses the optical head wherein the light receiving means further includes another light receiving area to generate a light quantity signal representing quantity of light of a portion of the second type of reflected ray, which is not sandwiched between the reflected rays of the first type (Fig. 3A-C, column 1, lines 40-68, column 2, lines 1-17), and wherein the optical head further includes: position signal detecting means for generating a position signal based on the light quantity signal representing the portion of the second type of reflected ray, the position signal representing a position of the objective lens in a direction perpendicular to the optical axis of light entering the objective lens (Fig. 3A-C, column 1, lines 40-68, column 2, lines 1-17); and offset correcting means for correcting an offset to be produced in the tracking error signal due to a shift of the objective lens by reference to the position signal (Fig. 3A-C, column 1, lines 40-68, column 2, lines 1-17).

As to **claim 20**, *Nagata* discloses the optical head comprising light splitting means for splitting the luminous flux of reflected rays into the first and second types of reflected rays (Fig. 4, column 5, lines 4-47).

As to **claim 22**, *Nagata* discloses a drive for making an optical head, control signal generating -means and driving means read and/or write data from/on a storage medium, the optical head comprising: a light source (Fig. 4, column 5, lines 4-47); an objective lens for focusing light, which has been emitted from the light source, onto a track of the storage medium (Fig. 4, column 5, lines 4-47); light receiving means including at least one light receiving area for

receiving a luminous flux of reflected rays, which have been reflected from the storage medium, thereby outputting a light quantity signal representing quantity of light received (Fig. 4, column 5, lines 4-47); tracking error signal generating means for generating a tracking error signal based on the light quantity signal (Fig. 1-3, column 1, lines 14-39); and shifting means for changing a position of the lens parallel to the track responsive to a drive signal (Fig. 3, column 1, lines 67-68, column 2, lines 1-17), wherein the luminous flux of reflected rays includes a first type of reflected rays where zero-order and first-order components of the light diffracted by the track are superposed one upon the other and a second type of reflected ray consisting essentially of the zero-order components (Fig. 13, column 10, lines 60-68, column 11, lines 1-8), and wherein as measured in a first direction in which the first type of reflected rays are arranged, the light receiving area has a size that is equal to or greater than the diameter of the luminous flux of reflected rays (Fig. 11, column 11, lines 47-65), and wherein as measured in a second direction perpendicular to the first direction, the first type of reflected rays (Fig. 11, column 11, lines 47-65), and wherein the control signal generating means generates a control signal for controlling the position of the lens such that the light follows the track on the storage medium in response to the tracking error signal (Fig. 4, column 5, lines 4-47), and wherein the driving means generates the drive signal for driving the shifting means in response to the control signal (Fig. 3, column 1, lines 66-68, column 2, lines 1-17).

As to **claim 23**, *Nagata* discloses a drive for making an optical head, control signal generating means and driving means read and/or write data from/on a storage medium having at least two tracks with mutually different reflectances, the optical head comprising: a light source (Fig. 4, column 5, lines 4-47); an objective lens for focusing light, which has been emitted from the light source, onto one of the tracks of the storage medium (Fig. 4, column 5, lines 4-47); light receiving means including: a plurality of light receiving areas, which receive a first type of reflected rays where zero-order and first-order components of the light diffracted by the track are superposed one upon the other to generate a light quantity signal representing quantity of light of the first type of reflected rays; and a non-light-receiving area, which is provided between the light receiving areas so as not to receive a second type of reflected ray consisting essentially of the zero-order components (Fig. 11, column 11, lines 47-65); tracking error signal generating means for generating a tracking error signal based on the light quantity signal (Fig. 1-3, column 1, lines 14-39); and shifting means for changing a position of the lens parallel to the tracks responsive to a drive signal (Fig. 3, column 1, lines 67-68, column 2, lines 1-17), wherein the control signal generating means generates a control signal for controlling the position of the lens such that the light follows the tracks on the storage medium in response to the tracking error signal (Fig. 4, column 5, lines 4-47), and wherein the driving means generates the drive signal for driving the shifting means in

response to the control signal (Fig. 3, column 1, lines 66-68, column 2, lines 1-17).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 8-10, 18, and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,275,463 to *Nagata et al.* in view of U.S. Patent Pub. No. 2001/0033528 A1 to *Sano et al.*

As to **claim 8**, *Nagata* discloses the optical head wherein if the light source radiates light with a wavelength λ , the objective lens has a numerical aperture NA and the track has a period T (Column 3, lines 11-30).

Nagata is deficient in disclosing the optical head reads and/or writes data from/on a storage medium that satisfies the inequality: $0.44 < (NA * T)^{-1}$.

However, *Sano* discloses the optical head reads and/or writes data from/on a storage medium that satisfies the inequality: $0.44 < (NA * T)^{-1}$ (Paragraph 48).

Nagata and *Sano* are analogous art because they are from the same field of endeavor with respect to optical head devices.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to have created an optical head wherein the light source

radiates a wavelength of λ and have the optical head read or write from a storage medium that satisfied an inequality as taught by *Sano*. The suggestion/motivation would have been in order to have created a tracking error signal generator (Paragraph 52).

As to **claim 9**, *Nagata* as modified discloses the optical head comprising: position signal detecting means for generating a position signal based on a light quantity signal representing a portion of the second type of reflected ray, which is not sandwiched between the reflected rays of the first type, the position signal representing a position of the objective lens in a direction perpendicular to the optical axis of light entering the objective lens (Fig. 3A-C, column 1, lines 40-68, column 2, lines 1-17); and offset correcting means for correcting an offset to be produced in the tracking error signal due to a shift of the objective lens by reference to the position signal (Fig. 3A-C, column 1, lines 40-68, column 2, lines 1-17).

As to **claim 10**, *Nagata* discloses the optical head wherein if the light source radiates light with a wavelength λ , the objective lens has a numerical aperture NA and the track has a period T (Column 3, lines 11-30).

Nagata is deficient in disclosing the optical head reads and/or writes data from/on a storage medium that satisfies the inequality: $0.40 < (NA \cdot T)^{-1} < 0.46$.

However, *Sano* discloses the optical head reads and/or writes data from/on a storage medium that satisfies the inequality: $0.40 < (NA \cdot T)^{-1} < 0.46$

(Paragraph 48). In addition, the same motivation is used as the rejection for claim 8.

As to **claim 18**, *Nagata* discloses the optical head wherein if the light source radiates light with a wavelength A , the objective lens has a numerical aperture NA and the track has a period T (Column 3, lines 11-30).

Nagata is deficient in disclosing the optical head reads and/or writes data from/on a storage medium that satisfies the inequality: $0.44 < (NA \cdot T)^{-1}$.

However, *Sano* discloses the optical head reads and/or writes data from/on a storage medium that satisfies the inequality: $0.44 < (NA \cdot T)^{-1}$ (Paragraph 48). In addition, the same motivation is used as the rejection for claim 8.

As to **claim 19**, *Nagata* as modified discloses the optical head wherein as measured in a first direction in which the first type of reflected rays are arranged, each said light receiving area has a size that is equal to or greater than the diameter of the luminous flux of reflected rays (Fig. 11, column 11, lines 47-65), and wherein as measured in a second direction perpendicular to the first direction, the light receiving area is narrower than the first type of reflected rays (Fig. 11, column 11, lines 47-65).

6. **Claims 12 and 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,275,463 to *Nagata et al.* in view of U.S. Patent No. 5,740,138 to *Hoshino et al.*

As to **claim 12**, *Nagata* discloses the optical head comprising: the offset correcting means corrects the offset to be produced in the tracking error signal

due to the variation in light intensity distribution by reference to the variation signal (Fig 6, column 6, lines 62-68, column 7, lines 12-59).

Nagata is deficient in disclosing the optical head of the offset correcting means corrects the offset to be produced in the tracking error signal due to the variation in light intensity distribution by reference to the variation signal comprising: a holder for holding the light splitting means and the objective lens together; and variation detecting means for generating a variation signal, representing a variation in light intensity distribution of the luminous flux of reflected rays on a boundary between two or more tracks with mutually different reflectances, based on the light quantity signal.

However, *Hoshino* discloses the optical head of comprising: a holder for holding the light splitting means and the objective lens together (Fig. 13, column 9, lines 12-59); and variation detecting means for generating a variation signal, representing a variation in light intensity distribution of the luminous flux of reflected rays on a boundary between two or more tracks with mutually different reflectances, based on the light quantity signal (Fig. 13, column 9, lines 12-59), wherein the offset correcting means corrects the offset to be produced in the tracking error signal due to the variation in light intensity distribution by reference to the variation signal (Fig. 6, column 6, lines 62-68, column 7, lines 1-22).

Nagata and *Hoshino* are analogous art because they are from the same field of endeavor with respect to optical recording apparatuses.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to have created an optical head with an offset correcting means and a holder for holding the light splitting means and the objective lens together as taught by *Hoshino*. The suggestion/motivation would have been in order to be able to more accurately detect focus errors (Fig. 13, column 9, lines 12-59).

As to **claim 21**, *Nagata* discloses the optical head comprising: the offset correcting means corrects the offset to be produced in the tracking error signal due to the variation in light intensity distribution by reference to the variation signal (Fig. 6, column 6, lines 62-68, column 7, lines 1-22).

Nagata is deficient in disclosing the optical head of comprising: a holder for holding the light splitting means and the objective lens together; and variation detecting means for generating a variation signal, representing a variation in light intensity distribution of the luminous flux of reflected rays on a boundary between two or more tracks with mutually different reflectances, based on the light quantity signal.

However, *Hoshino* discloses the optical head of comprising: a holder for holding the light splitting means and the objective lens together (Fig. 13, column 9, lines 12-59); and variation detecting means for generating a variation signal, representing a variation in light intensity distribution of the luminous flux of reflected rays on a boundary between two or more tracks with mutually different

reflectances, based on the light quantity signal (Fig. 13, column 9, lines 12-59).

In addition, the same motivation is used as the rejection for claim 12.

7. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.

Patent No. 6,275,463 to *Nagata et al.* in view of U.S. Patent No. 6,088,307 to *Fushimi et al.*

As to **claim 13**, *Nagata* is deficient in disclosing the optical head wherein the track of the storage medium has a wobble to store predetermined information thereon, and wherein the optical head further includes wobble signal detecting means for generating a wobble signal, representing the wobble, based on the light quantity signal by performing computation processing on the position signal and the tracking error signal with the position signal multiplied by a prescribed coefficient.

However, *Fushimi* discloses the optical head wherein the track of the storage medium has a wobble to store predetermined information thereon (Column 8, lines 22-44), and wherein the optical head further includes wobble signal detecting means for generating a wobble signal, representing the wobble, based on the light quantity signal by performing computation processing on the position signal and the tracking error signal with the position signal multiplied by a prescribed coefficient (Column 8, lines 22-44).

Nagata and *Fushimi* are analogous are because they are from the same field of endeavor with respect to optical recording.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to have created an optical head for reading and/or writing data from/on a storage medium comprising a light source and wobble signal detection as taught by *Fushimi*. The suggestion/motivation would have been in order to obtain a wobble signal from a groove track (Column 8, lines 22-4).

8. **Claims 14 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,275,463 to *Nagata et al.* in view of U.S. Patent No. 5,740,138 to *Hoshino et al.* in further view of U.S. Patent No. 6,088,307 to *Fushimi et al.*

As to **claim 14**, *Nagata* as modified is deficient in disclosing the optical head wherein the track of the storage medium has a wobble to store predetermined information thereon, and wherein the optical head further includes wobble signal detecting means for generating a wobble signal, representing the wobble, based on the light quantity signal by performing computation processing on the variation signal and the tracking error signal with the variation signal multiplied by a prescribed coefficient.

However, *Fushimi* discloses the optical head wherein the track of the storage medium has a wobble to store predetermined information thereon (Column 8, lines 22-44), and wherein the optical head further includes wobble signal detecting means for generating a wobble signal, representing the wobble, based on the light quantity signal by performing computation processing on the variation signal and the tracking error signal with the variation signal multiplied by a prescribed coefficient (Column 8, lines 22-44).

Nagata as modified and *Fushimi* are analogous are because they are from the same field of endeavor with respect to optical recording.

At the time of invention, it would have been obvious to a person of ordinary skilled in the art to have created an optical head for reading and/or writing data from/on a storage medium comprising a light source and wobble signal detection as taught by *Fushimi*. The suggestion/motivation would have been in order to obtain a wobble signal from a groove track (Column 8, lines 22-4).

As to **claim 15**, *Nagata* as modified is deficient in disclosing the optical head wherein the wobble signal detecting means sets the prescribed coefficient that reduces an offset variation of the wobble signal.

However, *Fushimi* discloses the optical head wherein the wobble signal detecting means sets the prescribed coefficient that reduces an offset variation of the wobble signal (Column 8, lines 22-44). In addition, the same motivation is used as the rejection for claim 14.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANEETA PATANKAR whose telephone number is (571)272-9773. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LunYi Lao can be reached on (571)272-7671. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Aneeta V. Patankar
Patent Examiner
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/AVP/

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